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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/056,278
Filing Date: January 23, 2002
Appellant(s): CHEN ET AL.

Kam T. Tam
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/21/2007 appealing from the Office action mailed 3/27/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,335,933	MALLORY	1-2002
5,446,759	CAMPANA, JR.	8-1995

5,920,553	KESKITALO	7-1999
6,286,122	ALANARA	9-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 6-8, 19, 20, 22, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory (US 6,335,933) in view of Campana, Jr. (US 5,446,759).

Referring to Claim 1, Mallory teaches a method for selectively combining a plurality of received transmissions from respective signal sources (see col. 2, lines 62-67) to recover a message comprised of a plurality of frames, the method comprising:

Processing each of the plurality of transmissions separately to receive the message (see fig. 10 where the block diagram represents one processed transmission and the process repeats causing a plurality of processed transmissions. Also see fig. 13 where resent frames, such as frames 3 and 4 show a plurality of processed transmissions); and

If the message cannot be recovered error-free from a single received transmission,

Determining erased frames in a message recovered from a first received transmission (see col. 3, lines 1-5 and fig. 13 where frames 3 and 4 represent the erased frames),

Determining good frames recovered from remaining ones of the plurality of received transmissions (see col. 2, lines 64-67 and fig. 13 where frames 1, 2, 5, and 6 in the "MULTIPLE LOST FRAMES" diagram represent the good frames),

Forming at least one combined message, wherein each combined message includes a particular combination of good frames substituting for the erased frames (see col. 3, lines 5-10 and fig. 13 where frames 3 and 4 get replaced to form a combined message with all good frames), and

Checking each combined message to determine whether it is good or erased (see col. 3, lines 5-10 and fig. 13 where after all erased frames get replaced with good frames, the message is determined to be good).

Mallory does not teach combining a plurality of received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the received transmissions from the plurality of respective signal sources separately to recover the message. Campana teaches combining a plurality of received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the received transmissions from the plurality of respective signal sources separately to recover the message (see col. 59, lines 21-63 and multiple sources 124 in fig. 11 and the process of replacing error frames in fig. 33). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to provide the teachings of Campana to said device of Mallory in order to increase the data transmission rate while lowering the error rate.

Claims 19, 26, and 27 have similar limitations as Claim 1.

Referring to Claim 3, Mallory also teaches checking each frame in the message recovered from the first received transmission and marking each frame failing the checking as an erased frame (see fig. 13).

Referring to Claim 6, Mallory also teaches identifying each erased frame in the message recovered from the first received transmission, identifying a good frame from one of the plurality of received transmissions corresponding to each erased frame and substituting each erased frame with the corresponding good frame to form the combined message (see figs. 12 and 13).

Referring to Claim 7, Mallory also teaches the good frame corresponding to each erased frame identified based on a frame number associated with each frame (see fig. 13).

Referring to Claim 8, Mallory also teaches identifying a plurality of combinations of good frames for the erased frames in the message recovered from the first received transmission and substituting each combination of good frames for the erased frames to form a respective combined message (see fig. 13).

Referring to Claim 20, Mallory also teaches a frame buffer to store good frames recovered from the plurality of symbol streams (see col. 2, lines 66-67).

Referring to Claim 22, Mallory also teaches a symbol buffer to store symbols corresponding to each erased frame in the message recovered from the first symbol system (see col. 2, lines 66-67).

3. Claims 2, 9-12, 14-17, 21, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory and Campana in view of Keskitalo (US 5,920,553).

Referring to Claim 2, the combination of Campana and Mallory does not teach the first received transmission having the highest signal quality among the plurality of transmissions. Keskitalo also teaches the first received transmission having the highest signal quality among the plurality of transmissions (see col. 5, lines 41-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Keskitalo to said device of Mallory in order to ensure the complete message transmission in shorter time.

Referring to Claim 9 and 21, Keskitalo also teaches combining symbols for two or more frames from two or more received transmissions corresponding to the erased frame and decoding the combined symbols to derive a good frame for the erased frame (see col. 5, lines 45-53).

Referring to Claim 10, Keskitalo also teaches ranking the plurality of received transmissions and wherein symbols for frames corresponding to the erased frames are combined in a particular order determined based on the ranking of the plurality of received transmissions (see col. 5, lines 41-44).

Referring to Claim 11, Keskitalo also teaches the plurality of received transmissions ranked based on signal quality (see col. 5, lines 41-44).

Referring to Claim 12, Kesktialo also teaches weighting symbols for each of the two or more frames corresponding to the erased frame based on a respective weight determined based on the signal quality of the two or more transmissions from which the two or more frames are recovered and wherein the weighted symbols are combined (see col. 5, lines 41-44).

Referring to Claim 14 and 25, Keskitalo also teaches each received transmission a forward link signal from a respective base station in a CDMA system (see ABSTRACT).

Referring to Claim 15, Keskitalo also teaches the plurality of received transmissions are approximately synchronous (see col. 4, lines 66-67 and col. 5, lines 1-2).

Referring to Claim 16, Keskitalo also teaches the plurality of received transmissions are approximately asynchronous (see col. 4, lines 66-67 and col. 5, lines 1-2).

Referring to Claim 17 and 24, Keskitalo also teaches the message to be recovered error-free as a page message (see col. 3, lines 49-51).

4. Claims 4, 5, 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory and Campana in view of Alanara (US 6,286,122).

Referring to Claim 18, Mallory teaches a method for selectively combining a plurality of non-synchronous forward link received transmissions from respective signal sources (see col. 2, lines 62-67) to recover a page message comprised of a plurality of frames, the method comprising:

Processing each of the plurality of non-synchronous forward link received transmissions separately to recover the page message (see fig. 10 where the block diagram represents one processed transmission and the process repeats causing a plurality of processed transmissions. Also see fig. 13 where resent frames, such as frames 3 and 4 show a plurality of processed transmissions); and

If the page message cannot be recovered error-free from a single received transmission,

Determining erased frames in a message recovered from a first non-synchronous forward link received transmission (see col. 3, lines 1-5 and fig. 13 where frames 3 and 4 represent the erased frames),

Determining good frames recovered from remaining ones of the plurality of non-synchronous forward link received transmissions (see col. 2, lines 64-67 and fig. 13 where frames 1, 2, 5, and 6 in the "MULTIPLE LOST FRAMES" diagram represent the good frames),

Forming a combined message, by substituting each erased frame with a corresponding good frame (see col. 3, lines 5-10 and fig. 13 where frames 3 and 4 get replaced to form a combined message with all good frames), and

Checking each combined message to determine whether it is good or erased (see col. 3, lines 5-10 and fig. 13 where after all erased frames get replaced with good frames, the message is determined to be good).

Mallory does not teach combining a plurality of non-synchronous forward link received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the non-synchronous forward link received transmissions from the plurality of respective signal sources separately to recover the message. Campana teaches combining a plurality of non-synchronous forward link received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the non-synchronous forward link received transmissions from the plurality of respective signal sources separately to recover the message (see col. 59, lines 21-63 and multiple sources 124 in fig. 11 and the process of replacing error frames in fig. 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Campana to said device of Mallory in order to increase the data transmission rate while lowering the error rate.

The combination of Campana and Mallory does not teach each frame and each message checked based on a set of cycle redundancy check bits generated. Alanara teaches each frame and each message checked based on a set of cycle redundancy check bits generated (see ABSTRACT). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of

Alanara to said device of Mallory in order to better prevent fading while receiving signals to form a message.

Referring to Claims 4, 5, and 23, the combination of Campana and Mallory does not teach each frame and each message checked based on a set of cycle redundancy check bits generated. Alanara teaches each frame and each message checked based on a set of cycle redundancy check bits generated (see ABSTRACT and fig. 3D where CRC bits are included to each frame). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Alanara to said device of Mallory in order to better prevent fading while receiving signals to form a message.

(10) Response to Argument

(A) The appellant argued that it is improper to combine the cited references because the references teach away from their combination.

In response to (A) The argument does not give any detailed explanation as to why the cited references teach away from their combination. In fact, the argument does not even mention the Mallory and Campana references in addition to any explanation at all as to why the Mallory and Campana references cannot be combinable. The Mallory and Campana references are therefore still believed to be properly combined by the examiner because they both teach an information transmission system wherein error frames due to a bad transmission can be fixed be substituting good frames for error frames (fig. 33 in Campana and fig. 10 in Mallory).

(B) The appellant argued that the Campana reference does not teach combining a plurality of received transmissions from a **plurality of respective signal sources** to recover a message comprised of a plurality of frames and processing the received transmissions from the plurality of respective signal sources separately to recover the message.

In response to (B) The appellants primary argument states that the Campana reference teaches the transmission from only one source and not multiple sources. The examiner would like to refer to the specification of the claimed invention in order to point out how the term multiple signal sources is defined. In pg. 1 of the specification (paragraph [1001]), the term is defined as base stations. In pg. 3 of the specification, (paragraph [1008]), the term is defined as transmitter units. The device in Campana clearly shows multiple transmitter units (124 of fig. 11). Therefore, by definition alone, the transmitter units of Campana can indeed be defined as multiple signal sources. In addition, since the multiple transmitters in Campana are in different geographic areas, it is obvious to one skilled in the art that if the wireless receiver (104 of fig. 11) were to roam from one geographic area into another, that communications would be handed off from one transmitter to another. Since the device in Campana is a simulcast system, the wireless receiver would therefore be receiving the same double message and performing the same process of substituting good frames for error frames (fig. 33) from multiple signal sources due to the roaming of the wireless receiver. There is nothing in the claims that cannot state that the receiver can receive the same frames from different transmitters due to roaming. There is also nothing in the claims which state which parts

of any transmission come from which source. To further solidify the examiners response, the examiner would like to point to col. 97, lines 12-13 which states that "...a land to mobile data message may originate from any number of devices". This response is regarding all independent claims 1, 18, 19, 26, and 27.

The arguments regarding the dependent claims are believed to be assessed from the response to the independent claims since no further specific arguments were not made regarding the dependent claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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